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STATUS OF OXCART

1. Origin:

OXCART is a CHALICE follow-on manned aircraft photographic reconnaissance system. OXCART, begun on 1 September 1959, is an outgrowth of a CUSTO feasibility study which was devoted to determining the feasibility of developing a CHALICE follow-on aircraft.

2. Management:

CIA is responsible for managing the OXCART program which is being carried out under the joint auspices of the CIA and USAF.

3. Description of System:

The OXCART aircraft utilizes a specially developed Lockheed airframe and two Pratt and Whitney J-58 engines capable of mach 3.2 performance at operational altitudes, on average missions, of about 84,500

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U.S. operational site is envisaged for this program. Aerial cameras being

developed for the system

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Twelve aircraft are being procured for
the test/operational program.

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4. Program:

a. September 1959 to Spring/Summer 1961:

Development and flight test of the system.

NRO review(s) completed.

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b. Summer of 1961-1965:

(1) Operational phase of the program:

Utilizing two refuelings, 96% (115 targets) of the 120 highest and priority targets (12 March 1960 data) can be covered in 15 operational missions, weather permitting.

(2) The operational life of the OXCART program is dependent on the Soviets ability to detect and intercept the OXCART aircraft with ground to air missiles. It is felt that the Soviet capability to intercept the aircraft will improve in the late phase of this period.

(3) During this period, the OXCART capability can be enhanced by improving performance [redacted] and perhaps attaining higher altitudes through a weight reduction program and in some cases by shorter range operational applications from more than one operational site.

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c. 1966-1970:

(1) Operational phase of the OXCART program on a limited basis:

During this phase, limited application of the OXCART aircraft can be employed against special targets primarily in areas where Soviet radar and intercept capabilities are known to be weak.

(2) It is anticipated that in this period the satellite photo-reconnaissance capability will improve and augment to a large extent manned aircraft photo-reconnaissance systems. Eventually, the satellite photo-reconnaissance system, if successful, will supplant manned aircraft reconnaissance systems as the primary source of photography over denied areas.

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STATUS OF CORONA

1. Origin

The Discoverer series of satellite launchings involves the covert development and operational use of short-lived photographic reconnaissance (CORONA) and mapping (ANICM) satellites from which a recoverable capsule will be retrieved at a pre-selected ocean area. Prior to its initiation the development of such a system was started by the Air Force as a part of Weapons System 117L. This phase was cancelled in February 1958; and, Discoverer became the covert reactivation, with a few modifications of a program already undertaken.

2. Management

Overall management of the project is shared by CIA (DDB) with originally ARPA and now Dr. York's office and with the support and full participation of the U.S. Air Force. Detailed supervision of Lockheed, the systems manager, is performed by the Air Force Ballistic Missile Division, which is also responsible for the provision of ground facilities. CIA takes the lead in contracting for and in monitoring through LNED the development of the photo payloads and CIA controls the security of the program.

3. Experience to date

The Discoverer series consists of twenty nine vehicles of which twenty are photo reconnaissance, four are mapping and the balance are for cover purposes. As of 1 April there had been ten launches and one abort on pad. Six of the launches achieved orbit, but none had been recovered. There had been seven cameras launched. Of these three failed of orbit and in the other four malfunctions occurred.

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4. Description of System

The Vehicle

The vehicle is a two-stage rocket consisting of a THOR first stage and the AGENA second stage. By June of 1960 this system should provide a four day polar orbit.

CORONA and ARGON Cameras

The CORONA camera is a modified HYAC-1 with 70 mm film. Focal length is 24 inches. By June 1960 it is expected that 7000 feet of film (40 lbs.) can be carried for a two-day operation at a planned altitude of 120 miles and a vehicle speed of 27,000 feet per second.

The resultant scale of the photography is about 1:300,000. Expected ground resolution is 25 feet. A swath of approximately 150 X 1800 N miles should be covered in each pass or about 270,000 square N. Miles. This is a programmed 1,350,000 square N. Miles per day.

The ARGON camera is a mapping type with 3 inch focal length and 5 inch film. The resultant scale of the topography is approximately 1:4,000,000. Camera format size is $4\frac{1}{2}''$ X $4\frac{1}{2}''$ and covers a ground area of approximately 250 X 250 N. Miles. Expected ground resolution is approximately 333 feet. Maximum film load is 4000 feet (42 lbs.). This is sufficient film for four days operation to obtain complete mapping coverage of the earth's land mass with primary emphasis on USSR.

Recovery

The recovery system consists of separation of the reentry nose cone over Alaska followed by retro rocket propelled reentry into the atmosphere and with parachute deployment at 50,000 feet with the nominal impact area

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approximately 250 miles south of Honolulu. Recovery is to be effected by air snatch by C 119 S backed up by surface ships in an area from just East of Johnson Island to about 550 miles East of the nominal impact point.

5. Future Program

A. Through FY 1962

An extension of the CORONA program is planned for the spring and summer of 1961. This will consist of several photo reconnaissance vehicles and probably one or more mapping payloads.

B. FY 1962-1970

An intelligence requirement will exist during the balance of the decade for satellite photo-reconnaissance of denied areas with ground resolution of 25 feet or better. This conclusion is based on the following assumptions:

(1) Lacking an international arms agreement there will be a continuing need for photo-intelligence of Soviet Bloc arms development; or

(2) With such an agreement at some point in the decade there will be a need of photo intelligence for inspection purposes.

(3) Although manned lower altitude flights, carrying equipment giving better photography, may be carried out, there will be an additional need for gross coverage from satellite photography to fill in the time and area gaps of the more sophisticated coverage and to point to areas deserving of closer scrutiny by such systems.

The conclusion stated at the outset seems therefore justified. However, the extent to which reconnaissance satellites need be flown covertly is by no means clear. It is reasonable to expect that our

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reluctance to orbit cameras openly over denied areas would disappear at once with positive free world support for such action, or in the event of a Soviet attempt to do so, or with a requirement for this kind of "inspection" in support of an arms agreement, and that one or another of these events is likely to occur. Since the weight of the evidence appears to support this view, it is assumed for the purpose of this study that CIA will not be engaged in satellite reconnaissance beyond CY 1961.

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